

298224

C.2  
n.d.**SANDOVAL ZINC CO.**

Sandoval, Ill.  
Marion Co. -- L1210500002  
ILD053980454

**Site Background**

The Sandoval Zinc site is an abandoned zinc smelter located 0.5 miles east of the town of Sandoval. The site covers approximately 12 - 14 acres and is relatively flat. Artificial fill (metal rich cinders from the smelting process) was used to fill in low areas and to raise the center of the site by between 5 to 8 feet. On-site cinder thickness ranges from 1 - 10 feet.

**Site Description**

The site is comprised of two large abandoned buildings, an old retort furnace, a pond to the east of the main plant area (formerly used to obtain process water), and a marsh area to the west. The entire site is covered with cinder fill. Very little vegetation grows on the fill. Surface water runoff flows from the center of the site in a radial pattern entering drainage ditches immediately to the east and west of the property. The cinder fill material appears to have been carried beyond the property lines by surface water runoff and wind dispersion. Large areas in the fields to the north, east and south of the site are either devoid of vegetation or contain sparse, stressed vegetation. Local farmers over the years have attempted to grow various crops in these fields to no avail with the exception of extremely hardy asparagus.

**Site History**

Site operations began between 1885 & 1890 as a primary zinc smelter. In approximately 1915 operations were converted to secondary smelting which continued until the site closed in 1985. Compounds fed into the kilns were pure zinc, zinc oxide, zinc chloride etc. Sandoval Zinc also accepted materials from third parties as a regular part of its business. Waste materials from the kilns (cinders) were spread throughout the site. These cinders were also stock piled on site and available for use to anyone who wished to haul them away. The primary use of these cinders was for road, driveway, walkway and parking lot surfacing. Cinders were utilized extensively throughout the town of Sandoval and on township roads.

**Contaminants****Soil**

Heavy metals are the contaminant of concern at this site and throughout the town of Sandoval. Lab analysis of on-site soils has revealed concentrations of lead in a range from 603 ppm to 22,300 ppm and zinc from 3360 ppm to 339,000 ppm. Soil benchmarks based on RAL's for lead are 1000 ppm and 160,000 for zinc. SCDM soil criteria has no benchmark

for lead, zinc has an action level of 170,000.

Potential for exposure to site soils by the general population is high due to a continuous process of persons tearing down the fence which was constructed around the site in 1991 when the site was sealed.

Off-site lead ranges from 27 ppm to 2840 ppm. Zinc ranges from 112 ppm to 12,500 ppm. These samples were taken from residential yards. Potential exposure to these soils is high.

### **Sediment**

Sediments in the two drainage ditches contained, among other heavy metal constituents, lead ranging from 50 ppm to 3370 ppm and zinc from 261 ppm to 39,000 ppm. These contaminants have migrated off-site, flowed 0.5 miles downstream via intermittent drainage routes to Prairie Creek which is a perennial waterway and fishery. Wetland areas also exist throughout the drainage system.

### **Groundwater**

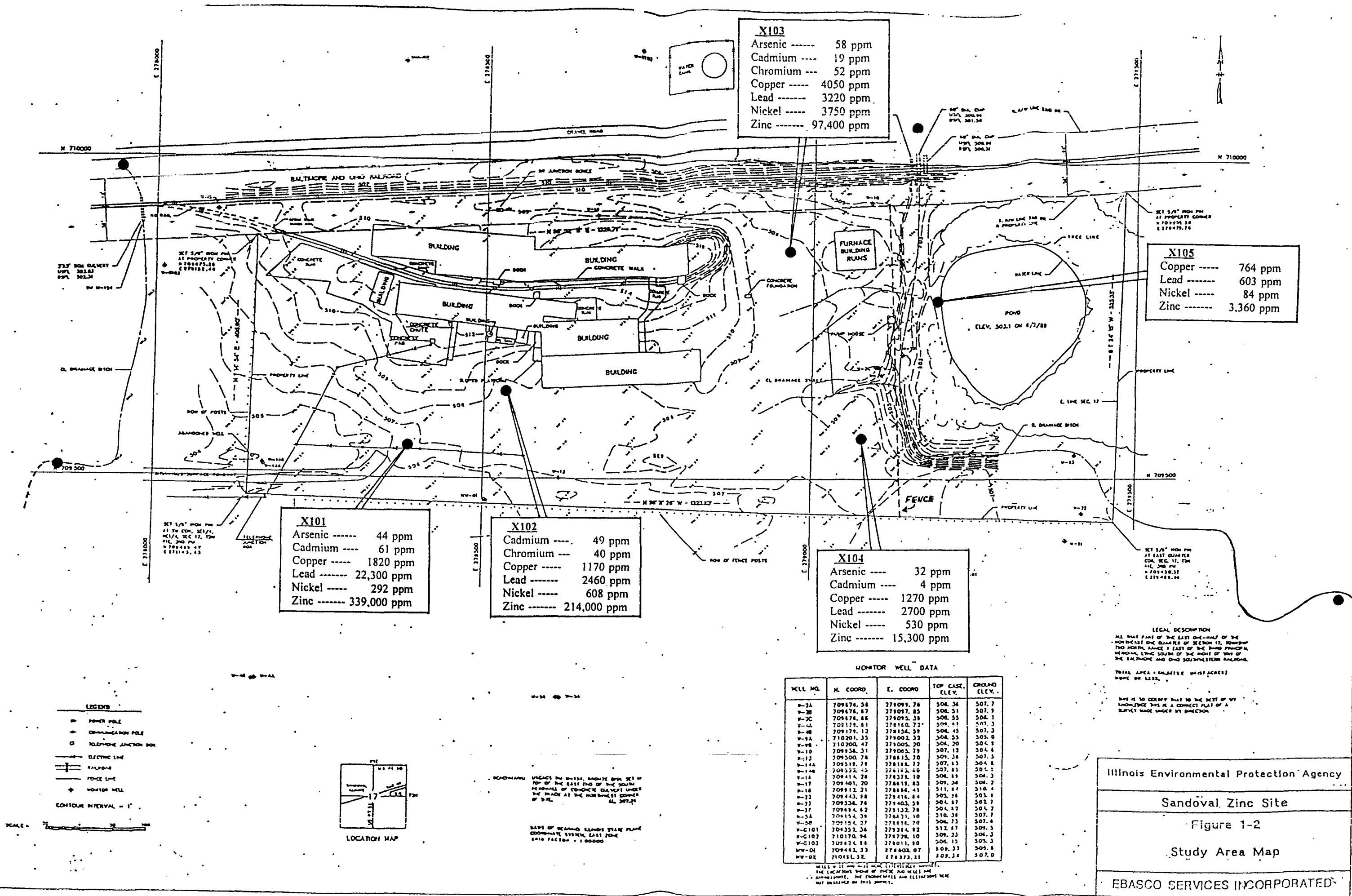
Groundwater monitor wells sampled during past studies and sampling events indicated that samples from some of the wells exceeded Federal Drinking Water Standards for cadmium, chromium, copper and silver.

Drinking water for the town of Sandoval is provided by the city of Centralia, six miles south of Sandoval.

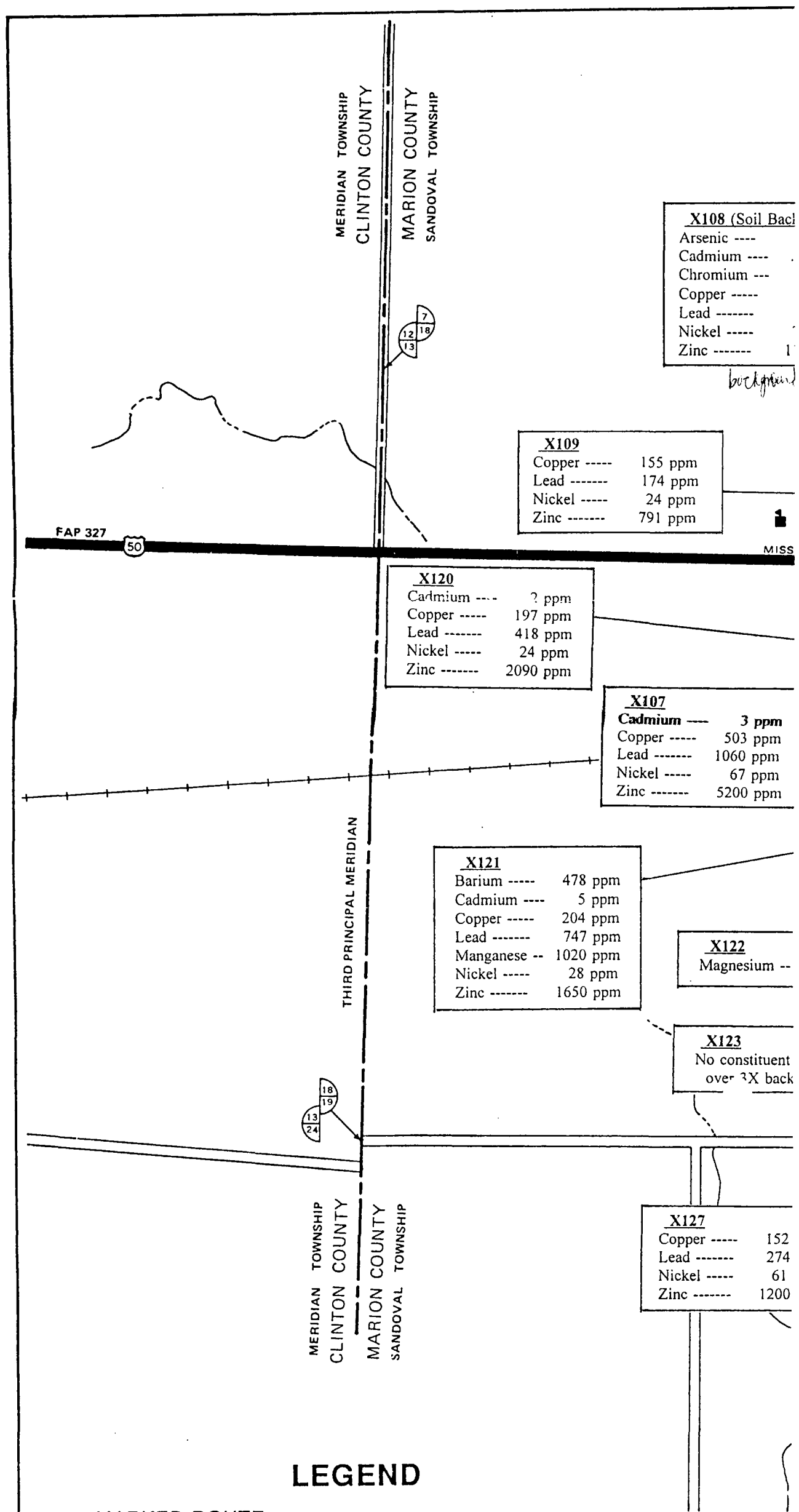
Residents beyond the town system obtain drinking water from private wells which tap thin lenses of water-bearing silty sand or gravel a few inches thick. These wells range from 30 to 60 feet deep. The closest private well is approximately one mile northeast of the site. Potential exposure to groundwater users is low as local soils are of unconsolidated glacial tills which generally inhibit groundwater flow.



SANDOVAL ZINC CO.

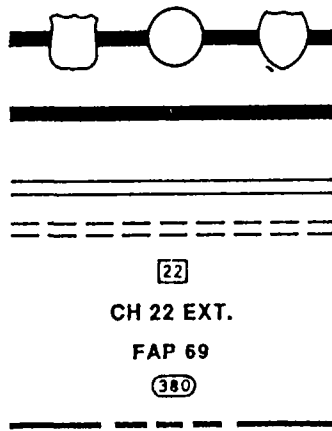






## LEGEND

MARKED ROUTE:  
 U.S. ILL., INTERSTATE  
 STATE HIGHWAYS:  
 SUPPLEMENTAL  
 RURAL ROADS AND  
 MUNICIPAL STREETS  
 UNOPENED STREETS  
 COUNTY HIGHWAY  
 COUNTY HIGHWAY EXT.  
 FEDERAL AID PRIMARY  
 FEDERAL AID SECONDARY  
 CORPORATE LIMITS



ORIGINAL
19
REVI
BY
MJM
MJM
MJM
MJM
JR
JR
BAT

**X118**  
Cadmium ---- 2 ppm  
Copper ---- 107 ppm  
Lead ----- 266 ppm  
Zinc ----- 897 ppm

**X117**  
Arsenic ---- 35 ppm  
Cadmium ---- 5 ppm  
Copper ---- 1630 ppm  
Lead ----- 2840 ppm  
Nickel ---- 495 ppm  
Zinc ----- 1,400 ppm

**X114**  
Copper ---- 96 ppm  
Lead ----- 248 ppm  
Zinc ----- 464 ppm

**X116**  
Copper ---- 68 ppm  
Lead ----- 217 ppm  
Zinc ----- 773 ppm

**X115**  
No constituent quantities  
over 3X background

**X110**  
Cadmium ---- 19 ppm  
Chromium --- 52 ppm  
Copper ---- 133 ppm  
Lead ----- 220 ppm  
Nickel ---- 55 ppm  
Zinc ----- 1290 ppm

**X205**  
Arsenic ---- 15 ppm  
Lead ----- 156 ppm  
Manganese -- 1820 ppm  
Zinc ----- 2040 ppm

**X106**  
Zinc ----- 349 ppm

**X206**  
Arsenic --- 27 ppm  
Cadmium --- 15 ppm  
Copper ---- 1090 ppm  
Lead ----- 3370 ppm  
Mercury --- 2 ppm  
Nickel ---- 259 ppm  
Zinc ----- 39,000 ppm

**X124**  
Copper ---- 45 ppm  
Lead ----- 135 ppm  
Zinc ----- 431 ppm

**X125**  
Cadmium ---- 4 ppm  
Copper ---- 84 ppm  
Lead ----- 170 ppm  
Zinc ----- 1420 ppm

**X126**  
No constituent quantities  
Over 3X background

**X207**  
Arsenic ---- 18 ppm  
Cadmium ---- 16 ppm  
Copper ---- 146 ppm  
Lead ----- 339 ppm  
Zinc ----- 2710 ppm

**X119**  
Cadmium ---- 1 ppm  
Copper ---- 51 ppm  
Lead ----- 385 ppm  
Zinc ----- 591 ppm

(ground)  
8 ppm  
3B ppm  
11 ppm  
14 ppm  
27 ppm  
7B ppm  
2 ppm

9090 ppm

quantities  
ground

ppm  
ppm  
ppm  
ppm

L DATA  
31

SED

DATE

12-31-86

12-31-87

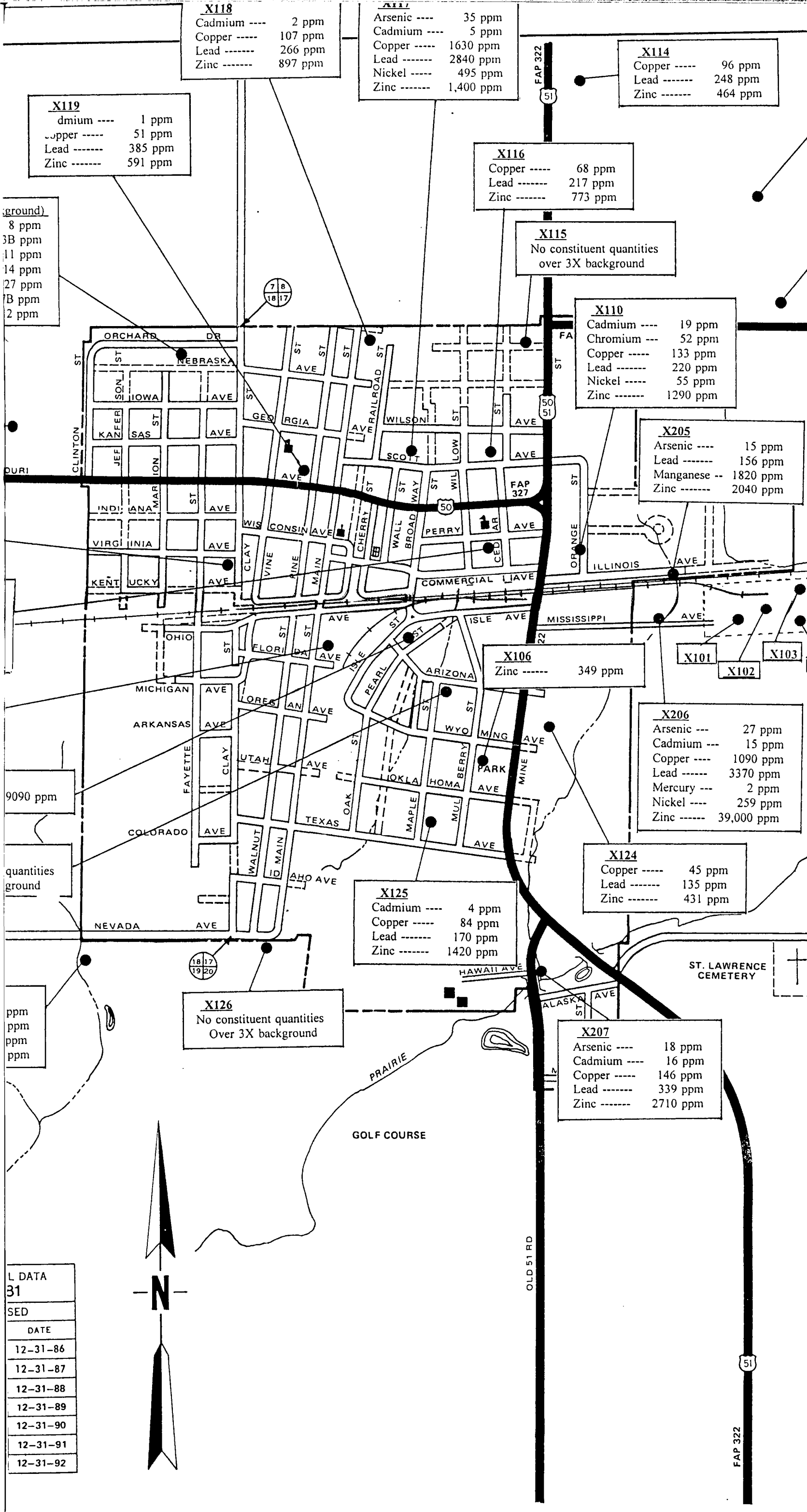
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**X113**

Lead ----- 85 ppm  
Zinc ----- 442 ppm

**X112**

Arsenic ---- 45 ppm  
Cadmium ---- 8 ppm  
Copper ---- 408 ppm  
Lead ----- 1150 ppm  
Nickel ---- 258 ppm  
Zinc ----- 12,500 ppm

**X111**

Lead ----- 131 ppm  
Nickel ---- 25 ppm  
Zinc ----- 554 ppm

**X201**

Arsenic ---- 37 ppm  
Cadmium ---- 6 ppm  
Copper ---- 725 ppm  
Lead ----- 3300 ppm  
Nickel ---- 83 ppm  
Zinc ----- 6520 ppm

**X202 (Dup. of X201)**

Arsenic ---- 21 ppm  
Cadmium ---- 6 ppm  
Copper ---- 651 ppm  
Lead ----- 2510 ppm  
Nickel ---- 86 ppm  
Zinc ----- 5700 ppm

**X203**

Arsenic ---- 20 ppm  
Cadmium ---- 11 ppm  
Copper ---- 537 ppm  
Lead ----- 833 ppm  
Nickel ---- 242 ppm  
Zinc ----- 6300 ppm

**X204 (Sediment Background)**

Arsenic ---- 4B ppm  
Cadmium ---- 2B ppm  
Copper ---- 28 ppm  
Lead ----- 50 ppm  
Nickel ---- 10B ppm  
Zinc ----- 261 ppm

**X128**

Copper ---- 45 ppm  
Lead ----- 189 ppm  
Zinc ----- 1270 ppm

**X129 (Dup. of X128)**

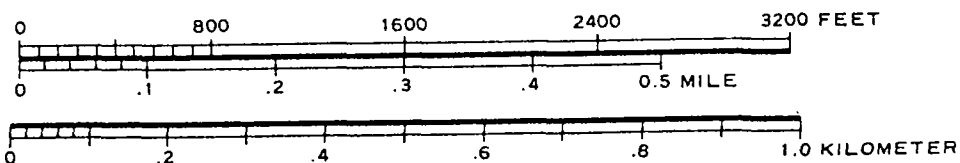
Lead ----- 159 ppm  
Zinc ----- 1090 ppm

**GENERAL HIGHWAY MAP**  
VILLAGE OF  
**SANDOVAL**  
MARION COUNTY  
ILLINOIS

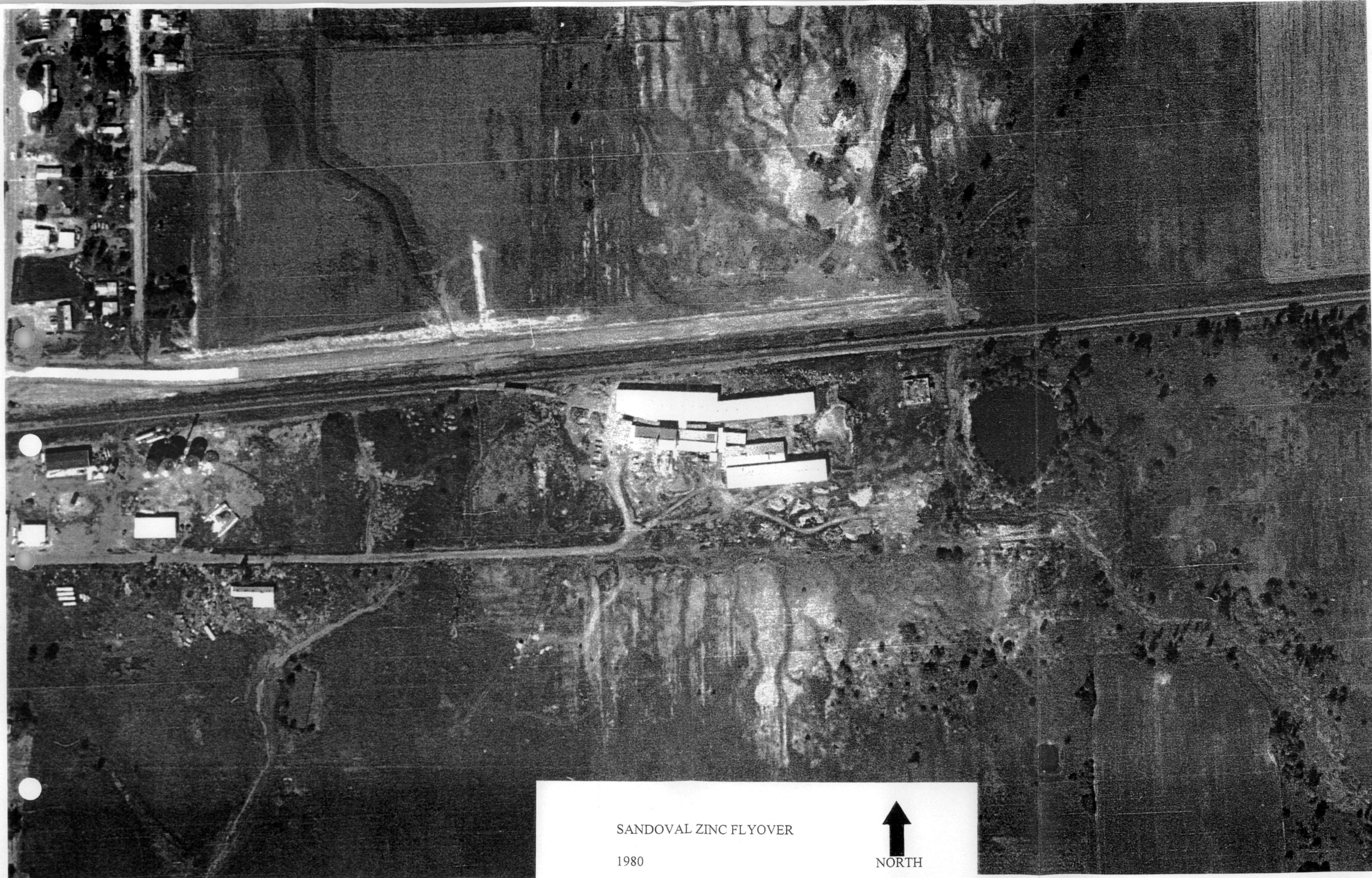
PREPARED BY THE  
**DEPARTMENT OF TRANSPORTATION**  
OFFICE OF PLANNING AND PROGRAMMING

IN COOPERATION WITH THE  
**U.S. DEPARTMENT OF TRANSPORTATION**  
FEDERAL HIGHWAY ADMINISTRATION

**SCALE**

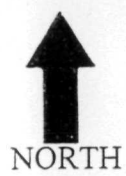






SANDOVAL ZINC FLYOVER

1980



NORTH





SANDOVAL ZINC FLYOVER

1971



NORTH





SANDOVAL ZINC FLYOVER

1965







SANDOVAL ZINC FLYOVER

1962



NORTH





SANDOVAL ZINC FLYOVER

1955

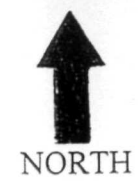






SANDOVAL ZINC FLYOVER

1949







SANDOVAL ZINC FLYOVER

1938



NORTH